

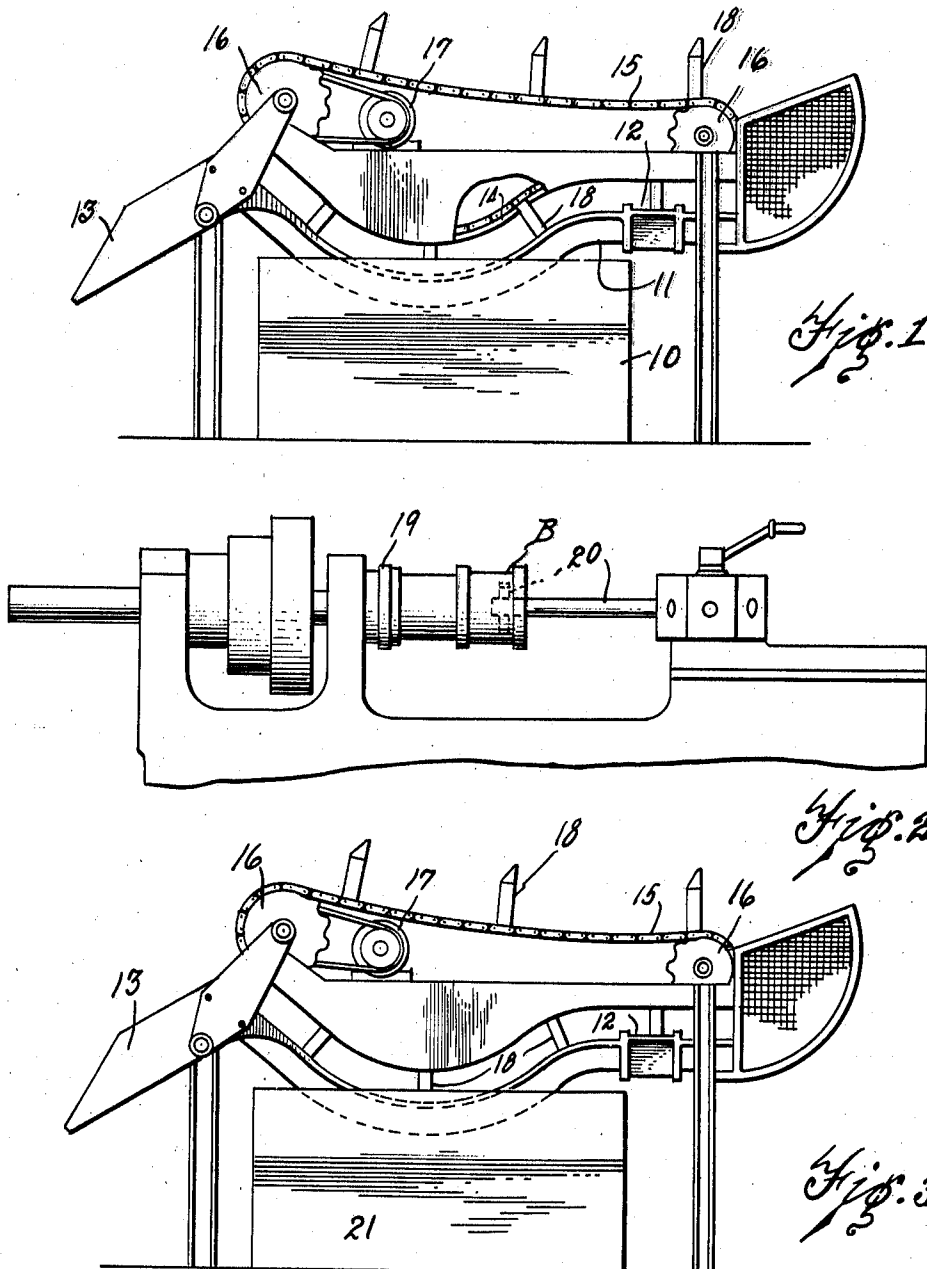
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METHOD OF TINNING BEARING SHELLS AND THE LIKE

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METHOD OF TINNING BEARING SHELLS AND THE LIKE

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This invention relates to the method of tinning bearing shells and the like and more particularly in improvements in methods of this character which effect economy in the use of tin, and expedite the tinning operation.

In the manufacture of bearings and the like it is customary to coat the shell with tin previous to babbitting to insure a good bond between the babbitt, and the bearing back. Although it is only necessary to apply the coating of tin to the inner or bearing surface of the shell, nevertheless it has heretofore been the general practice to introduce the shells into a tinning bath whereupon the entire shell is tinned. After tinning the shell in this manner it has been the custom to finish or turn the outer surface of the shell whereupon the coating of tin on this outside surface is removed. The chips or material reclaimed during this operation must be sold as bronze chips, the shell being of bronze, despite the fact that these chips are part tin. As a consequence the value of the tin on the outside surface of the shell is lost and this method of coating bearings is relatively inefficient from the standpoint of economy.

For the purpose of effecting economy in time it is both desirable and necessary that the shells be introduced into the tinning bath and otherwise handled in large quantities simultaneously. However, while with the methods now generally practiced economy in time is effected, nevertheless the expense involved in the loss of tin occasioned in the manner as hereinbefore pointed out makes the whole process a costly and relatively inefficient one.

It is, therefore, the primary object of my invention to provide a process or method of tinning bearings wherein the bearings may be handled in large quantities simultaneously or continuously, as is now the practice but wherein only the surface to be babbitted will be tinned. It is obvious that in practicing my improved method a great economy will

be realized by saving that portion of the tin which, in heretofore practiced methods, adhered to the exterior of the shell.

In practicing my improved method the shells or other articles to be tinned are first introduced into a bath of material to coat the shells with a material to which tin will not adhere. After being removed from this bath the shells are bored so as to smooth or prepare the inner surface thereof for the babbitt. This is now customary in instances where a uniform babbitt is desirable. During this boring operation the material which prevents the adherence of tin is removed from the inner surface of the shell which later is to be tinned. Thereafter the shells are introduced into the tinning bath and because of the coating of material on the exterior of the shell which prevents the adherence of tin, only the inner or bored surface will be tinned.

The several objects and advantages of this invention and a detailed description of the several steps of the method will be made more apparent as this description proceeds especially when considered in connection with the accompanying drawings wherein:

Figure 1, illustrates semi-diagrammatically the means for introducing the shells into the bath of material which prevents the adherence of tin.

Figure 2, is a fragmentary view of a conventional form of boring machine for cleaning or boring the inner surface of the shell, and

Figure 3, is a view illustrating semi-diagrammatically the means of introducing the shells into the tinning bath.

While obviously the particular form and the structural details of the apparatus employed for introducing the shells into the two baths and of the means for boring the shells, should in nowise be considered as limiting the broad interpretation of the present invention, nevertheless one form of such apparatus

tus, which in practice has been found to give extremely good results, is illustrated herein for the sake of clearness.

By reference to Figure 1 it will be noted that the tank 10 is provided to contain a bath of material which when applied as a coating to the shells will subsequently prevent the adherence thereto of tin. A trough 11, preferably substantially V shaped in cross section extends over the tank 10 and dips down into the contents of the tank. The shells are introduced into the trough as at 12 and are discharged as at 13. Guided during the lower half of its flight in a channel 14 is an endless chain or carrier 15 supported on sprockets 16. One of these sprockets may be driven by means of a power unit 17. Arranged at spaced intervals on the chain 15 are pedals 18, which are adapted during the lower flight of the chain to travel along the trough 11 so as to move the bearing shells longitudinally of this trough and through the bath of material contained in tank 10.

Therefore, the shells are first introduced into a bath of material contained in the tank 10 and when discharged at the end 13 of the apparatus just described are coated with this material. The material employed is one having properties preventing the adherence of tin to the shell.

The shells, one of which is indicated at B in Figure 2, are then internally bored during which operation the said coating of material which adhered to the inner surface of the shell, is removed. This boring is not an idle or useless operation as it is quite customary to bore the shells prior to babbitting as such an operation smooths or evens the surface and permits a more even and uniform distribution of the babbitt. However, when the step of boring the shell is introduced into this method at this particular point it is doubly advantageous. The conventional form of boring machine illustrated includes a work holder 19 to which the shell B is attached and a tool 20 engaging the shell interiorly thereof.

After the shells have been bored they are introduced into the tinning bath contained in tank 21 of the apparatus shown in Figure 3, which is, or may be identical with the apparatus employed in connection with the first bath. Obviously the shells may again be introduced continuously and in large numbers and when they emerge from this tinning bath there adheres thereto a coating of tin on the inner bored and clean surface whereas the coating of material on the exterior surface has prevented any adherence of tin to that surface.

While obviously the bath contained in tank 10 may be of any material having properties which so affect the shells, after an emersion therein, to prevent the adherence of tin,

nevertheless I find that a solution or bath composed of approximately twenty-five (25%) per cent silicate of soda and approximately seventy-five (75%) per cent water is sufficient and satisfactory in every respect or on the other hand an aqueous solution of liver of sulphur has also been found to produce satisfactory results. One of the particular advantages attributed to a solution of this character is that they do not effect the bronze casting or shell so that the chips reclaimed when the shell is turned down may be reused or sold as pure bronze chips.

It will be immediately apparent to those skilled in this particular art that the herein described method or process affords an economical and efficient means for coating bearings and the like. Obviously it is possible to effect a saving of approximately fifty (50%) per cent in the amount of tin employed and to nevertheless handle the shells continuously and in large quantities. While the apparatus herein suggested as suitable for use in carrying out this process may be used to advantage, nevertheless it will immediately be obvious that many other types of apparatus may be employed in connection with this process with equal facility. It should also be understood that I am not limited to the use of silicate of soda and water or an aqueous solution of liver of sulphur as the ingredients of the first bath because while such solutions are satisfactory and effective, nevertheless other solutions having substantially the same properties could obviously be substituted without sacrificing any of the advantages of the herein described method. As a consequence reservation is made to make such changes in the essentials and nonessentials of this invention as may come within the purview of the accompanying claims.

What I claim as my invention is:—

1. In the method of tinning bearing shells and the like those steps which consist in, coating the shell with a material preventing the adherence of tin, removing such material from the surface to be tinned by boring the shell and introducing the shell into a tinning bath.

2. In the method of tinning bearing shells and the like those steps which consist in introducing the shells into a bath of material which prevents the adherence of tin, boring the shell previous to babbitting to prepare the surface and remove the said material adhering thereto and introducing the shells into a tinning bath wherein the tin adheres to said bored surface.

3. In the method of tinning bearing shells and the like those steps which consist in introducing the shells into a bath comprising a solution of sodium silicate and water, boring the shells to remove said solution from the surface to be tinned and introducing the

shells into a tinning bath wherein the tin adheres to said bored surface.

4. In the method of tinning bearing shells and the like those steps which consist in depositing a plurality of bearing shells into a bath of material to which tin will not adhere, boring the inner surfaces of the shells to form a smooth surface for the babbit and thereby simultaneously removing the said material from the inner surfaces of the shells and introducing the said shells into a tinning bath wherein the tin adheres to the bored surfaces.

In testimony whereof I affix my signature.
VERNE SKILLMAN.

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